



RESEARCH

IN SERVICE LABORATORIES

February 1950

REFRIGERATION: An unusual problem was encountered with the frozen oysters that were prepared for studies on the darkening which occurs during storage. The first monthly examination showed all samples to have decidedly pink-colored liquor upon thawing and pink to red discoloration of many of the oysters. The flavor was much towards the bad side, making taste tests impossible. Efforts are now being made to determine the cause of the discoloration. Although the color is similar to that produced by "pink yeast," it seems most unlikely that this organism would grow at the storage temperature of 0° F. or even during the short thawing period of a few hours while the oysters were still quite cold.

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After 11 months in zero storage, the fish that were wrapped in vegetable parchment, then dipped in water, wrapped in moisture-vaporproof material and frozen, are still well coated with ice and show no desiccation or discoloration. This is in sharp contrast to the fish prepared by the usual methods.

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Further examinations were made of the four packs of canned sockeye salmon prepared from frozen fish and the control pack from the fresh fish. The results have confirmed the conclusions drawn in the previous report of this study. On the basis of a combined quality rating of all factors (color, odor, texture, and flavor), the packs prepared from the frozen sockeye salmon have shown a significant loss in quality which increases with the length of storage. Further loss in quality results from such factors in the experimental packs as increased curd formation, discoloration of surface, decreased oil and free liquid, and increased turbidity of the liquid. An abnormal toughening of the flesh has been noted in most samples prepared from the frozen fish, although considerable variation is present.

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SANITATION AND QUALITY CONTROL: The average pH values of the oyster samples examined this month, taken at the packing table, are as follows:

<u>Sample</u>	<u>Standards</u>	<u>Selects</u>
Single oyster	6.55	6.62
Three oysters	6.53	6.61
Six oysters	6.53	6.63
Liquor	6.76	6.81

The range in pH of the ground fresh meats is staying within rather narrow limits, being between 6.50 and 6.58 for the standards, and 6.58 and 6.65 for the

selects during this period. The pH of the liquor has varied between 6.72 and 6.78 for the standards, and 6.80 and 6.82 for the selects. Spoilage during storage in ice occurred at a pH between about 5.95 and 5.78.

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ANALYTICAL METHODS: Vitamin B₁₂ assays are still erratic. Two separate tests were carried out on the effect of the air incubator versus the effect of a constant temperature water bath. Both times, and in both cases, the assays were reasonable so that there was no chance of determining whether the water bath incubation made a difference.

The use of ascorbic acid versus thioglycollic acid was tested. Higher results were usually obtained using ascorbic acid, but this needs more investigation.

The pH of the media now appears to make a greater difference than was originally believed. Assays at pH 5.5 or 6.0 have been giving better results than assays at pH 6.5. This has happened several times, but on the other hand, good assays have resulted when the media was at pH 6.5.

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BYPRODUCTS: The analysis of livers from fish brought back from the Bering Sea by the Exploratory Fishing Section has now been completed. In all, 227 livers were analyzed for oil and vitamin A. Although the data have not as yet been completely tabulated, it can be stated that no outstanding results were obtained and none of the species show any great promise of being an important source of vitamin A.

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SERVICE TO STUDY FREEZING OF CRAB MEAT: A grant of \$2,000 to the Fish and Wildlife Service for research studies on the freezing preservation of crab meat was approved in February by the Executive Committee of the Refrigeration Research Foundation.

It is planned to have the studies made at the Service's College Park laboratory. In view of the limited funds made available, it was decided to concentrate the research studies on only the meat from the blue crab, since this phase of the problem seems to be of greatest over-all importance.

A qualified graduate student of biochemistry from one of the local universities will be hired to carry on the work on a part time basis.

